D 16

```
FFFFFFFFFFFFFFF        111              111           AAAAAAAAA
FFFFFFFFFFFFFFF        111              111           AAAAAAAAA
FFFFFFFFFFFFFFF        111              111           AAAAAAAAA
FFF                 111111           111111        AAA         AAA
FFF                 111111           111111        AAA         AAA
FFF                 111111           111111        AAA         AAA
FFF                    111              111        AAA         AAA
FFF                    111              111        AAA         AAA
FFFFFFFFFFFF           111              111        AAA         AAA
FFFFFFFFFFFF           111              111        AAA         AAA
FFFFFFFFFFFF           111              111        AAA         AAA
FFF                    111              111        AAA         AAA
FFF                    111              111        AAAAAAAAAAAAAAA
FFF                    111              111        AAAAAAAAAAAAAAA
FFF                    111              111        AAAAAAAAAAAAAAA
FFF                    111              111        AAA         AAA
FFF                    111              111        AAA         AAA
FFF                    111              111        AAA         AAA
FFF                 111111111        111111111     AAA         AAA
FFF                 111111111        111111111     AAA         AAA
FFF                 111111111        111111111     AAA         AAA
```

```
**FILE**ID**MAPVBN                                  H  3



MM      MM    AAAAAA    PPPPPPPP    VV      VV  BBBBBBBB    NN      NN
MM      MM    AAAAAA    PPPPPPPP    VV      VV  BBBBBBBB    NN      NN
MMMM  MMMM  AA      AA  PP      PP  VV      VV  BB      BB  NN      NN
MMMM  MMMM  AA      AA  PP      PP  VV      VV  BB      BB  NN      NN
MM  MM  MM  AA      AA  PP      PP  VV      VV  BB      BB  NNNN    NN
MM  MM  MM  AA      AA  PP      PP  VV      VV  BB      BB  NNNN    NN
MM      MM  AA      AA  PPPPPPPP    VV      VV  BBBBBBBB    NN  NN  NN
MM      MM  AA      AA  PPPPPPPP    VV      VV  BBBBBBBB    NN  NN  NN
MM      MM  AAAAAAAAAA  PP          VV      VV  BB      BB  NN    NNNN
MM      MM  AAAAAAAAAA  PP          VV      VV  BB      BB  NN    NNNN
MM      MM  AA      AA  PP            VV  VV    BB      BB  NN      NN      ....
MM      MM  AA      AA  PP            VV  VV    BB      BB  NN      NN      ....
MM      MM  AA      AA  PP              VV      BBBBBBBB    NN      NN      ....
MM      MM  AA      AA  PP              VV      BBBBBBBB    NN      NN      ....

LL            IIIIII      SSSSSSSS
LL            IIIIII      SSSSSSSS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II      SS
LL              II        SSSSSS
LL              II        SSSSSS
LL              II              SS
LL              II              SS
LL              II              SS
LL              II              SS
LLLLLLLLLL    IIIIII    SSSSSSSS
LLLLLLLLLL    IIIIII    SSSSSSSS
```

MOD
V04

```
0001  0 MODULE MAPVBN (
0002  0                 LANGUAGE (BLISS32),
0003  0                 IDENT = 'V04-000'
0004  0                 ) =
0005  1 BEGIN
0006  1
0007  1 !
0008  1 !****************************************************************************
0009  1 !*                                                                          *
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0027  1 !*                                                                          *
0028  1 !*                                                                          *
0029  1 !****************************************************************************
0030  1
0031  1 !++
0032  1 !
0033  1 ! FACILITY:  F11ACP Structure Level 1
0034  1 !
0035  1 ! ABSTRACT:
0036  1 !
0037  1 !       This routine maps the specified virtual blocks to their
0038  1 !       corresponding logical blocks using the supplied window.
0039  1 !       The window is turned if necessary.
0040  1 !
0041  1 ! ENVIRONMENT:
0042  1 !
0043  1 !       STARLET operating system, including privileged system services
0044  1 !       and internal exec routines.
0045  1 !
0046  1 !--
0047  1 !
0048  1 !
0049  1 ! AUTHOR:  Andrew C. Goldstein,  CREATION DATE:  3-Mar-1977  12:20
0050  1 !
0051  1 ! MODIFIED BY:
0052  1 !
0053  1 !       V02-002 LMP0005         L. Mark Pilant,         29-Dec-1981  15:20
0054  1 !               Add support for Cathedral windows.
0055  1 !
0056  1 !       V02-001 ACG0229         Andrew C. Goldstein,    22-Dec-1981  19:44
0057  1 !               Move updating of PMS$GL_TURN from TURN_WINDOW
```

```
;  58          0058  1 !
;  59          0059  1 !         V02-000 ACG0167          Andrew C. Goldstein,    7-May-1980  18:51
;  60          0060  1 !                 Previous revision history moved to F11A.REV
;  61          0061  1 !**
;  62          0062  1
;  63          0063  1
;  64          0064  1 LIBRARY 'SYS$LIBRARY:LIB.L32';
;  65          0065  1 REQUIRE 'SRC$:FCPDEF.B32';
```

```
1 GLOBAL ROUTINE MAP_VBN (VBN, WINDOW, BLOCK_COUNT, UNMAPPED_BLOCKS) =
1
1 !++
1 !
1 ! FUNCTIONAL DESCRIPTION:
1 !
1 !       This routine maps the specified virtual blocks to their
1 !       corresponding logical blocks using the supplied window.
1 !       the window is turned if necessary.
1 !
1 ! CALLING SEQUENCE:
1 !       MAP_VBN (ARG1, ARG2, ARG3, ARG4)
1 !
1 ! INPUT PARAMETERS:
1 !       ARG1: desired VBN
1 !       ARG2: address of window to use
1 !       ARG3: number of blocks to map
1 !               if not present, 1
1 !
1 ! IMPLICIT INPUTS:
1 !       NONE
1 !
1 ! OUTPUT PARAMETERS:
1 !       ARG4: if present, addres to store number of unmapped blocks
1 !
1 ! IMPLICIT OUTPUTS:
1 !       NONE
1 !
1 ! ROUTINE VALUE:
1 !       starting LBN or -1 if no map
1 !
1 ! SIDE EFFECTS:
1 !       window may be turned, header may be read
1 !
1 !--
1
2 BEGIN
2
2 MAP
2       WINDOW          : REF BBLOCK;
2
2 LOCAL
2       COUNT,                          ! number of blocks to map
2       UNMAPPED,                       ! address to store unmapped block count
2       DUMMY,                          ! place for above by default
2       FCB             : REF BBLOCK,   ! address of FCB of file
2       HEADER          : REF BBLOCK,   ! address of file header
2       LBN;                            ! resulting LBN of map
2
2 EXTERNAL
2       PMS$GL_TURN     : ADDRESSING_MODE (GENERAL);
2                                       ! system count of window turns
2
2 EXTERNAL ROUTINE
2       MAP_WINDOW,                     ! scan window map
2       READ_HEADER,                    ! read file header
2       TURN_WINDOW,                    ! turn window
```

```
	REMAP_FILE;				! remap the file completely


! Check the VBN for legality - i.e., non-zero and within the file size
! given in the FCB.
!

FCB = .WINDOW[WCB$L_FCB];
IF .VBN EQL 0 OR .VBN GTRU .FCB[FCB$L_FILESIZE]
THEN RETURN -1;

! If the file is multi-header, scan the extension FCB's for the one
! containing the desired VBN. The right FCB is identified by noting that
! there are no more, or that the start VBN of the next one is greater than
! the desired VBN.
!

UNTIL
    (IF .FCB[FCB$L_EXFCB] EQL 0 THEN 1
     ELSE .BBLOCK [.FCB[FCB$L_EXFCB], FCB$L_STVBN] GTRU .VBN
    )
DO FCB = .FCB[FCB$L_EXFCB];

! Default the optional arguments.
!

COUNT = (IF ACTUALCOUNT GEQ 3
	THEN .BLOCK_COUNT
	ELSE 1
	);
UNMAPPED = (IF ACTUALCOUNT GEQ 4
	THEN .UNMAPPED_BLOCKS
	ELSE DUMMY
	);

! If an extension was done on a file which was has Cathedral windows, it is
! necessary to remap the file to correctly map the extended portion of the
! file.
!

IF .WINDOW[WCB$V_CATHEDRAL] AND NOT .WINDOW[WCB$V_COMPLETE]
THEN REMAP_FILE ();

! Attempt to map the transfer with the existing window. If the map fails
! completely, turn the window and try once more. When any blocks map,
! return the relevant data.
!

DECR I FROM 2 TO 1 DO
    BEGIN

	LBN = KERNEL_CALL (MAP_WINDOW, .VBN, .WINDOW, .COUNT, .UNMAPPED);
	IF .LBN NEQ -1 THEN EXITLOOP;

	HEADER = READ_HEADER (0, .FCB);
	KERNEL_CALL (TURN_WINDOW, .WINDOW, .HEADER, .VBN, .FCB[FCB$L_STVBN]);
	PMS$GL_TURN = .PMS$GL_TURN + 1;		! count window turn in PMS data base
```

```
;  181           0494  3
;  182           0495  2       END;
;  183           0496  2
;  184           0497  2 RETURN .LBN;
;  185           0498  2
;  186           0499  1 END;                                       ! end of routine MAP_VBN


                                                                            .TITLE  MAPVBN
                                                                            .IDENT  \V04-000\

                                                                            .EXTRN  PMS$GL_TURN, MAP_WINDOW
                                                                            .EXTRN  READ_HEADER, TURN_WINDOW
                                                                            .EXTRN  REMAP_FILE, SYS$CMKRNL

                                                                            .PSECT  $CODE$,NOWRT,2

                                               07FC 00000                   .ENTRY  MAP_VBN, Save R2,R3,R4,R5,R6,R7,R8,R9,R10    ; 0380
                             5A 00000000G   9F   9E 00002                   MOVAB   @#SYS$CMKRNL, R10                             ;
                             5E             04   C2 00009                   SUBL2   #4, SP                                        ;
                             52        08   AC   D0 0000C                   MOVL    WINDOW, R2                                    ; 0444
                             53        18   A2   D0 00010                   MOVL    24(R2), FCB                                   ;
                             55        04   AC   D0 00014                   MOVL    VBN, R5                                       ; 0445
                                            06   13 00018                   BEQL    1$                                            ;
                     38      A3             55   D1 0001A                   CMPL    R5, 56(FCB)                                   ;
                                            04   1B 0001E                   BLEQU   2$                                            ;
                             50             01   CE 00020 1$:               MNEGL   #1, R0                                        ; 0446
                                                 04 00023                   RET                                                   ;
                             50        0C   A3   D0 00024 2$:               MOVL    12(FCB), R0                                   ; 0455
                                            0B   13 00028                   BEQL    3$                                            ;
                             55        2C   A0   D1 0002A                   CMPL    44(R0), R5                                    ; 0456
                                            05   1A 0002E                   BGTRU   3$                                            ;
                             53             50   D0 00030                   MOVL    R0, FCB                                       ; 0458
                                            EF   11 00033                   BRB     2$                                            ;
                             03             6C   91 00035 3$:               CMPB    (AP), #3                                      ; 0463
                                            06   1F 00038                   BLSSU   4$                                            ;
                             58        0C   AC   D0 0003A                   MOVL    BLOCK_COUNT, COUNT                            ; 0464
                                            03   11 0003E                   BRB     5$                                            ;
                             58             01   D0 00040 4$:               MOVL    #1, COUNT                                     ; 0463
                             04             6C   91 00043 5$:               CMPB    (AP), #4                                      ; 0467
                                            06   1F 00046                   BLSSU   6$                                            ;
                             57        10   AC   D0 00048                   MOVL    UNMAPPED_BLOCKS, UNMAPPED                     ; 0468
                                            03   11 0004C                   BRB     7$                                            ;
                             57             6E   9E 0004E 6$:               MOVAB   DUMMY, UNMAPPED                               ; 0467
               0A        0B  A2             06   E1 00051 7$:               BBC     #6, 11(R2), 8$                                ; 0477
               05        0B  A2             05   E0 00056                   BBS     #5, 11(R2), 8$                                ;
                      0000G  CF             00   FB 0005B                   CALLS   #0, REMAP_FILE                                ; 0478
                             54             02   D0 00060 8$:               MOVL    #2, I                                         ; 0492
                                            57   DD 00063 9$:               PUSHL   UNMAPPED                                      ; 0488
                                     0104   8F   BB 00065                   PUSHR   #^M<R2,R8>                                    ;
                                            55   DD 00069                   PUSHL   R5                                            ;
                                            04   DD 0006B                   PUSHL   #4                                            ;
                                            5E   DD 0006D                   PUSHL   SP                                            ;
                                     0000G  CF   9F 0006F                   PUSHAB  MAP_WINDOW                                    ;
                             6A             07   FB 00073                   CALLS   #7, SYS$CMKRNL                                ;
                             56             50   D0 00076                   MOVL    R0, LBN                                       ;
                   FFFFFFFF  8F             56   D1 00079                   CMPL    LBN, #-1                                      ; 0489
```

**F

```
                                              29  12 00080          BNEQ    10$                                             ;
                                              53  DD 00082          PUSHL   FCB                                             ; 0491
                                              7E  D4 00084          CLRL    -(SP)                                           ;
                          0000G  CF           02  FB 00086          CALLS   #2, READ_HEADER                                 ;
                                 59           50  D0 0008B          MOVL    R0, HEADER                                      ;
                                         2C   A3  DD 0008E          PUSHL   44(FCB)                                         ; 0492
                                              55  DD 00091          PUSHL   R5                                              ;
                                       0204   8F  BB 00093          PUSHR   #^M<R2,R9>                                      ;
                                              04  DD 00097          PUSHL   #4                                              ;
                                              5E  DD 00099          PUSHL   SP                                              ;
                                      0000G   CF  9F 0009B          PUSHAB  TURN_WINDOW                                     ;
                                 6A           07  FB 0009F          CALLS   #7, SYS$CMKRNL                                  ;
                                   00000000G  00  D6 000A2          INCL    PMS$GL_TURN                                     ; 0493
                                 B8           54  F5 000A8          SOBGTR  I, 9$                                           ; 0485
                                 50           56  D0 000AB 10$:     MOVL    LBN, R0                                         ; 0497
                                                  04 000AE          RET                                                     ; 0499

; Routine Size:  175 bytes,    Routine Base:  $CODE$ + 0000


;  187          0500  1
;  188          0501  1 END
;  189          0502  0 ELUDOM



;                                            PSECT SUMMARY
;
;       Name                          Bytes                         Attributes
;
;  $CODE$                                  175  NOVEC,NOWRT, RD ,  EXE,NOSHR,  LCL,  REL,  CON,NOPIC,ALIGN(2)


;                                   Library Statistics
;
;                                                   -------- Symbols --------            Pages          Processing
;       File                                        Total    Loaded   Percent            Mapped         Time
;
;  _$255$DUA28:[SYSLIB]LIB.L32;1                    18619         7         0            1000             00:01.9



;                                             COMMAND QUALIFIERS
;
;       BLISS/CHECK=(FIELD,INITIAL,OPTIMIZE)/LIS=LIS$:MAPVBN/OBJ=OBJ$:MAPVBN MSRC$:MAPVBN/UPDATE=(ENH$:MAPVBN)
;
; Size:          175 code + 0 data bytes
; Run Time:         00:07.4
; Elapsed Time:     00:24.2
; Lines/CPU Min:     4048
; Lexemes/CPU-Min: 12870
; Memory Used:  99 pages
; Compilation Complete
```

```
MO
V0

;
;
;
;
;
;
;
;
```

0166 AH-BT13A-SE
VAX/VMS V4.0

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